

ABSTRACT

A hybrid coupler (66, 67; 72, 73) has four ports and is capable of coupling radio frequency signals having a certain frequency from at least one port to at least one other port. The hybrid coupler (66, 67; 72, 73) is implemented as a differential coupler arranged to couple differential radio frequency signals. With such a hybrid coupler a power amplifying circuit can be produced which has sufficiently low ripple on the supply voltage to be integrated together with more sensitive radio circuits, and which is also insensitive to load mismatch such that an isolator can be avoided. A differential hybrid coupler allows the output current to be shared between four transistors or amplifiers, thus reducing the amplitude of the ripple. Further, the frequency of the ripple is four times the operating frequency of the circuit, which makes it much easier to filter out the ripple.